

Amend
A.F.

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1. (currently amended): A differential capacitive torque sensor for a continuously rotating shaft where the shaft is split into first and second halves by a buried torsion bar comprising:

a dielectric disk having a plurality of spokes mounted for rotation with the first half of said shaft;

a pair of first and second apertured conductive disks forming a cage for said dielectric disk and mounted for rotation with the said second half of said shaft, said cage shielding portions of said spokes of said dielectric disk in proportion to applied shaft torque;

~~a pair of concentric capacitor plate rings lying in a common plane, one ring having a~~
B2 greater diameter than the other ring encircling said first ~~shaft~~ half and juxtaposed with said first apertured conductive disk;

an opposed capacitor plate, encircling said second ~~shaft~~ half and juxtaposed with said second apertured conductive disk; each apertured conductive disk including apertures arranged in a pair of concentric rings that match the first and second concentric plate rings, which encircle said ~~aid~~ first ~~shaft~~ half, said apertures alternating with solid conductive portions around a circle, said concentric rings being offset from one another so that at least part of the solid portion of one ring matches the aperture of the other to provide differential capacitances; and

electrical bridge means for comparing the capacitances formed between said pair of concentric rings and said opposed capacitor plate for determining said applied shaft torque.

— Claim 2. (original): A torque sensor as in claim 1 where said apertured conductive disks have identical aperture patterns which are aligned with each other.

B3 — Claim 3. (original): A torque sensor as in claim 1 where said apertured conductive disks are electrically connected together.

b3
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Claim 4. (original): A torque sensor as a in claim 1 where said concentric plate rings have equal areas.

b4
Claim 5. (previously amended): A torque sensor as in claim 1 where said offset is 180 degrees.

Claim 6. (currently amended): A torque sensor as in claim 1 5 where said plurality of spokes radially extend to cover at least a portion of an aperture on each concentric ring, depending on applied torque, whereby the dielectric parameters of said capacitances are determined.

b5
Claim 7. (original): A torque sensor as in claim 6 where under zero torque conditions substantially one half of each aperture is covered by each spoke to provide equal values of capacitance.

Claim 8. (original): A torque sensor as in claim 6 where when applied torque is a maximum in one rotational direction the apertures of one ring are substantially covered and the other ring apertures minimally covered and with applied maximum torque in the opposite direction the opposite covering of apertures occurs.
